REMARKS

Status of the Claims

Pending claims

Claims 6, 7, 9 to 15 and 23 to 41 are currently pending. Claims 9 to 12 were withdrawn from further consideration in Paper No. 9 in response to a restriction requirement.

Claims amended and canceled in the present amendment

In the present response, claims 7, 24, 25, 26 and 41 are amended and new claims 42 to 48 are added. Claims 9 to 15 are canceled, without prejudice. Thus, after entry of the instant amendment, claims 6, 7, and 23 to 48 will be pending and under consideration.

Outstanding Rejections

Claims 7, 24 and 37 to 41 stand rejected under 35 U.S.C. §112, first paragraph. Claims 7, 24 and 37 to 41 stand rejected under 35 U.S.C. §112, second paragraph. Claims 6, 23, 25, 26, 28, 29 and 35 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent No. 6,083,763 to Balch (hereinafter "Balch"). Claims 6, 21, 23, 25 to 27 and 30 to 36 were rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent No. 6,101,946, Martinsky, filed Nov. 13, 1998, and having a priority date of Nov. 21, 1997 (hereinafter "Martinsky"), as taught by a TeleChem International website copyright 1998, 1999, http://www.arrayit.com//products/ solutions/mss/mss.html (hereinafter "TeleChem"). Claims 6, 23 to 31 and 34 to 41 were rejected under 35 U.S.C. §103 as allegedly unpatentable over U.S. Patent No. 6,268,131, filed December 15, 1997 (hereinafter "Kang"). Claim 7 was rejected under 35 U.S.C. §103 as allegedly unpatentable over Kang in view of U.S. Patent No. 5,843,767, Beattie, issued Dec. 1, 1998 (hereinafter "Beattie").

Applicants respectfully traverse all outstanding rejections of the claims and objections to the specification.

Telephonic Interviews

Applicants thank the Examiner for the very helpful and courteous telephonic interviews, including those of December 20, 2002, December 16, 2002, November 26, 2002, and November 13, 2002.

Information Disclosure Statements

A copy of the Information Disclosure Statement and Form PTO 1449 originally submitted August 28, 2000, was faxed to the Patent Office November 7, 2002. A second, a supplementary, Information Disclosure Statement and Form PTO 1449 are attached herein. Applicants note that the reference cited therein, USPN 6,207,369, Wohlstadter, et al., filed September 17, 1996, was first brought to Applicants attention by the Examiner in one of the telephonic interviews of December 16, 2002.

Support for Claim Amendments

The specification sets forth an extensive description of the invention in the amended claims. Support for methods for making biochips in which a binding agent is present only at the desired portions of the chip surface and is not present at portions where there is no probe can be found, inter alia, on page 8, lines 13 to 17; page 9, lines 1 to 7. No new matter has been introduced by the present amendment.

The Specification

In paragraph 4, page 3, of the outstanding office action, the Patent Office alleges that the phrase "the binding agent is not conjugated to the probe" is not supported by the specification. The instant amendment addresses this issue. After entry of the instant amendment, the claim will be directed to methods for producing a biochip using a poly-L-lysine and/or a carbodiimide as binding agent(s).

Issues under 35 U.S.C. §112, first paragraph

Claims 7, 24 and 37 to 41 stand rejected under 35 U.S.C. §112, first paragraph. The Patent Office alleges that the phrase "the binding agent is not conjugated to the probe" is not supported by the specification. The instant amendment addresses this issue. After entry of the instant amendment, the claim will be directed to methods for producing a biochip using a poly-L-lysine and/or a carbodiimide as binding agent(s).

Issues under 35 U.S.C. §112, second paragraph

Claims 7, 24 and 37 to 41 stand rejected under 35 U.S.C. §112, second paragraph.

The phrase "wherein the binding agent is capable of immobilizing a probe to the biochip"

The Patent Office alleges that claims 7, 24 and 37 to 41 are indefinite in claim 24, and claim 41 is indefinite, for the recitation "wherein the binding agent is capable of immobilizing a probe to the biochip" because it is allegedly unclear whether a probe is immobilized to a biochip.

The instant amendment addresses this issue. After entry of the instant amendment, the method of claim 24 comprises first spotting the binding agent to a plurality of positions on a biochip surface, wherein the binding agent is locally spotted with a pin or a tube; and after the spotting of the binding agent, locally spotting a plurality of probes onto the binding agents locally spotted, wherein the plurality of probes are spotted with a pin or a tube and the probe is immobilized to the surface by binding to the binding agent.

After entry of the instant amendment, the method of claim 41 comprises first spotting the binding agent to a plurality of positions on the biochip, wherein the binding agent is locally spotted with a pin or a tube and the binding agent is only immobilized on a spotted area of the biochip, wherein the pin or the tube comprise a tip comprising at least one recess on the tip; and after the spotting of the binding agent, locally spotting a plurality of probes onto the positions spotted, wherein the plurality of probes are locally spotted with the pin or the tube and the probe is immobilized to the surface by binding to the binding agent.

Issues under 35 U.S.C. §102(e)

U.S. Patent No. 6,083,763 to Balch

Claims 6, 23, 25, 26, 28, 29 and 35 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent No. 6,083,763 to Balch.

The legal standard for anticipation under 35 U.S.C. §102 is one of strict identity. To anticipate a claim, a single prior source must contain each and every limitation of the claimed invention.

As discussed in the telephonic interviews, the instant amendment addresses this issue. Balch does not discuss, inter alia, a method for making a biochip comprising providing a binding agent, wherein the binding agent is selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes, and spotting the binding agent to a plurality of positions on the biochip surface, wherein the binding agent is locally spotted with a pin or a tube.

Accordingly, because Balch is not a single prior source that contains each and every limitation of the claimed invention, Applicants respectfully request reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. §102 as allegedly anticipated by Balch.

U.S. Patent No. 6,101,946 to Martinsky, as taught by TeleChem

Claims 6, 23, 25, 26, 28, 29 and 35 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent No. 6,101,946, Martinsky, filed Nov. 13, 1998, and having a priority date of Nov. 21, 1997, as taught by TeleChem International website copyright 1998, 1999, http://www.arrayit.com//products/ solutions/mss/mss.html.

The legal standard for anticipation under 35 U.S.C. §102 is one of strict identity. To anticipate a claim, a single prior source must contain each and every limitation of the claimed invention.

As discussed in the telephonic interviews, the instant amendment addresses this issue. Martinsky, as taught by TeleChem, does not discuss, inter alia, a method for making a biochip comprising providing a binding agent, wherein the binding agent is selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes, and spotting

the binding agent to a plurality of positions on the biochip surface, wherein the binding agent is locally spotted with a pin or a tube.

Accordingly, because Martinsky, as taught by TeleChem, is not a single prior source that contains each and every limitation of the claimed invention, Applicants respectfully request reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. §102 as allegedly anticipated by Martinsky, as taught by TeleChem.

U.S. Patent No. 6,268,131

Claims 6, 23 to 31 and 34 to 41 were rejected under 35 U.S.C. §103 as allegedly unpatentable over U.S. Patent No. 6,268,131, filed December 15, 1997.

As noted by the Patent Office, Kang does not teach, inter alia, a method of making biochips using poly-L-lysine, carbodiimide or silylation-coating linkers.

As discussed in the telephonic interviews, the instant amendment addresses this issue. Kang, does not discuss, inter alia, a method for making a biochip comprising providing a binding agent, wherein the binding agent is selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes, and spotting the binding agent to a plurality of positions on the biochip surface, wherein the binding agent is locally spotted with a pin or a tube.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 6, 23 to 31 and 34 to 41 based upon 35 U.S.C. 103 as being unpatentable over Kang.

Claim 7 was rejected under 35 U.S.C. §103 as allegedly unpatentable over Kang in view of Beattie. However, as discussed above, Kang, does not discuss, inter alia, a method for making a biochip comprising providing a binding agent, wherein the binding agent is selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes, and spotting the binding agent to a plurality of positions on the biochip surface, wherein the binding agent is locally spotted with a pin or a tube. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 7 based upon 35 U.S.C. 103 as being unpatentable over Kang in view of Beattie.

CONCLUSION

In view of the foregoing amendment and remarks, it is believed that the Examiner can properly withdraw the rejection of the pending claims under 35 U.S.C. §112, first and second paragraphs and 35 U.S.C. §102(e) and §103. Applicants believe all claims pending in this application after entry of the instant amendment are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If necessary, please apply additional and necessary charges, and apply all credits, to Deposit Account No. 06-1050.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (858) 678-5070.

Respectfully submitted,

Date: Dec. 26, 2002

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Version with markings to show changes made

The following claims have been amended as follows:

7. (Amended) The method of claim 24, claim 25, [or] claim 26 or claim 41, wherein the binding agent comprises [is selected from the group consisting of] a poly-1-lysine and a carbodiimide [and a silylation-coating].

24. (Twice amended) A method for producing a biochip comprising a plurality of spots comprising probes, the method comprising the following steps:

(a) providing a binding agent, wherein the binding agent is [capable of immobilizing a probe to the biochip] selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes [probe];

(b) first spotting the binding agent to a plurality of positions on the biochip surface, wherein the binding agent is locally spotted with a pin or a tube [and the binding agent is only provided on an area of the biochip where a probe is to be spotted]; and

(c) after the spotting of the binding agent in step (b), locally spotting a plurality of probes onto the [positions] binding agents locally spotted in step (b), wherein the plurality of probes are spotted with a pin or a tube and the probe is immobilized to the surface by binding to the binding agent[, thereby producing a biochip comprising a plurality of spots comprising probes in which the probe is present only at positions on the biochip where the binding agent has been spotted and the binding agent is not present on the biochip where there is no probe].

25. (Twice amended) A method for producing a biochip comprising a plurality of spots comprising probes, the method comprising the following steps:

(a) providing a mixture of a binding agent and a plurality of probes [probe], wherein the binding agent is [capable of immobilizing the probe to the biochip and the binding agent is not conjugated to the probe] selected from the group consisting of a poly-L-lysine and a carbodiimide;

(b) providing a biochip surface; and

(c) locally spotting the mixture to a plurality of positions on the surface of the biochip, wherein the mixture is only spotted on an area of the biochip surface where a probe is desired to be immobilized and the probe is immobilized to the surface by binding to the binding agent[, thereby producing a biochip comprising a plurality of spots comprising immobilized probes in which the binding agent and the probe are present only at the desired portions of the surface and are not present on unspotted portions].

26. (Twice amended) A method for producing a biochip comprising a plate comprising a plurality of spots comprising probes, the method comprising the following steps:

[(a) providing a plate;]

(a) [(b)] providing a mixture of a binding agent and a plurality of probes [probe], wherein the binding agent is [capable of immobilizing the probe to the plate] selected from the group consisting of a poly-L-lysine and a carbodiimide [and the binding agent is not conjugated to the probe]; and

(b) [(c)] locally spotting the mixture to a plurality of positions on the plate, wherein the mixture is only spotted on an area of the [biochip] plate where a probe is desired to be immobilized and the probe is immobilized to the plate by binding to the binding agent[, thereby producing a biochip comprising a plurality of spots comprising immobilized probes in which the binding agent and the probe are present only at desired portions of the surface and are not present on unspotted portions].

41. (Amended) A method for producing a biochip comprising a plurality of spots comprising probes, the method comprising the following steps:

(a) providing a binding agent, wherein the binding agent is [capable of immobilizing a probe to the biochip] selected from the group consisting of a poly-L-lysine and a carbodiimide, and a plurality of probes [probe];

(b) first spotting the binding agent to a plurality of positions on the biochip, wherein the binding agent is locally spotted with a pin or a tube and the binding agent is only [provided] immobilized on a [an] spotted area of the biochip [where a probe is to be spotted], wherein the pin or the tube comprise a tip comprising at least one recess on the tip; and

(c) after the spotting of the binding agent in step (b), locally spotting a plurality of probes onto the positions spotted in step (b), wherein the plurality of probes are locally spotted with the pin or the tube and the probe is immobilized to the surface by binding to the binding agent[, thereby producing a biochip comprising a plurality of spots comprising probes in which the probe is present only at positions on the biochip where the binding agent has been spotted and the binding agent is not present on the biochip where there is no probe].

The following new claims have been added:

--42. (NEW) The method of claim 24, claim 25 or claim 41, wherein the surface comprises a material selected from the group consisting of a nylon membrane, a glass, a silicone wafer, a polyimide resin and a polymer plastic.

43. (NEW) The method of claim 24, claim 25, claim 26 or claim 41, wherein the probe comprises a DNA.

44. (NEW) The method of claim 24, claim 25, claim 26 or claim 41, wherein the probe comprises an RNA.

45. (NEW) The method of claim 24, claim 25, claim 26 or claim 41, wherein the probe comprises a protein.

47. (NEW) The method of claim 24, claim 25, claim 26 or claim 41, wherein the binding agent comprises a poly-1-lysine.

48. (NEW) The method of claim 24, claim 25, claim 26 or claim 41, wherein the binding agent comprises a carbodiimide.--